



QUANTA Magazine



QUANTA 1984 TO 2010

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Information on the Association

Membership of QUANTA, the independent QL user group, is by annual subscription. The Membership Secretary can supply full details. Copies of the association's constitution & annual accounts are available from the Secretary. There is an extensive software library. There are active national subgroups. Details are given in the Member's Guide and in this magazine.

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I am about to take over from John Gilpin as Editor of our QUANTA Magazine. This is a tremendous leap of faith on his part as my least successful subject all those years ago at school was English.

I hope that the intervening years and the experience I have gained in a number of ways will enable me to step into his shoes and handle the compilation of the Magazine in an acceptable way.

My introduction to computing was via the QL and in line with many owners - the purchase was made in 1986 when the price had come down to around £100.00. Twenty Years ago wrestling with the intricacies of the QL was a part time enjoyment as work had to come first then.

I am not sure exactly when I found QUANTA in the North East, around 1990 I believe, but the guys there helped me to take my first stumbling steps on the road to computer literacy - if that's the correct expression.

Now just to clue you in, I started this Editorial in May 2008 - yes > 2008 unfortunately I was struck down with something like sciatica (the doctor said it was sciatica but the physio I visited said it wasn't; either way it hurt like hell !) and I couldn't start as Magazine Editor that year. It's taken me 18 months to get back into action and I'm about to have another go in 2010.

Now back to 2008 >>>

Having decided to stick my head above the parapet and make the offer to become more involved with QUANTA, I travelled North to Manchester for the Workshop & A.G.M. at Davyhulme on April 12th / 13th. Prior to going North - I travelled across (from the Isle of Wight) to Portsmouth and stayed at Chichester for a few days. Over the past 3 years, I have been a traveller complete with caravan so when I travelled to Chichester, I stayed at the local Caravan Club site.

This was within shooting distance of the Solent QL Sub-group - so on April 5th 2008, I made the effort and visited them. I was made very welcome by those present on that day. I had a great afternoon and hope I can visit again in the near future.

After leaving Chichester, I gently manoeuvred my way up country via Chipping Norton to Leek (near Stoke) and used Leek as a base driving up to Manchester for the Workshop and the A.G.M.

Two surprises were awaiting me at Davyhulme, both connected to my QUANTA days at Newcastle-upon-Tyne.

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The first was Derek who I had not seen since 1994 and the second was John who helped me understand how the boot program works on a QL.

Over the years my interest in Electronics has grown which has resulted in my going back to college and taking courses in Electronic servicing and BTec Electronics Parts 1 & 2 - so yes I do know about resistors & capacitors, but I'm not so strong on Software programming although I've done a bit of C and C+.

My great interest was started on the QL when I came across a PCB Design program and thought that that was something I could do.

Subsequently a PCB design course became available at College and I dived in head first - The PCB Design Program was EDWIN for the IBM PC and I've spent hours > days > weeks using it. I realise that on occasions talk is cheap so here is a picture that only my eyes have seen before.



Do you recognise the inside of a QL - There is a Gold Card connected to a QubIDE Interface - Bottom Right is My custom interface board which allows connection from the Gold Card FDD connector to the Laptop FDD cable + a custom power board with an 8V Voltage Regulator (for a smooth 9v supply) which allows the Switched Mode PSU shown at the top of the picture to connect via the 5 pin Din at the back of the of the case - if you look carefully there is a 9 mm Hard Drive above a 12.5 mm Laptop Floppy Disk Drive in the Top of the QL Case.

Hope I've caught your interest - more about my Super QL later.

Jochen Merz SOFTWARE

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**J-M-S will be at the QL Meeting near Vienna
June 2010 - most likely Friday and Saturday!**

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Price list valid until 30th of May 2010

The Committee have had a request from one sub-group for support. In the past support has been limited to either half the annual costs or £100.00, whichever was the lower. Many sub-groups now meet in each others homes as the numbers at each meeting no longer require a hired room. Members opinions are invited as to what level of support should be given to sub-groups and at what level of numbers should meetings be at individual's homes and not in a meeting room. This has been added to the AGM agenda as a point of discussion.

All the details for the Annual General Meeting are this year being published in a separate booklet. The magazine size would be too thick for the printer to easily staple together if the Annual items were included. Members attending should bring their booklet with them to save QUANTA having to provide reports and balance sheets on the day.

I am pleased to see that the new QUANTA survey is being issued with this magazine as a separate booklet. Please complete the survey to help your Committee provide the best service to our members. If you have internet access please complete the survey on line, otherwise complete and return the booklet to Mrs Alison Southern.

COMMITTEE PRECIS**Alison Southern**

In the past two months the new QUANTA website has been under development and should be ready to go live before too long.

The committee held a brief e-mail meeting in January with regards to a financial request from the London subgroup. Although the committee were broadly in agreement, the item was added to the agenda for the February committee meeting.

A committee meeting was held on the 7th February at 181 Urmston Lane, Manchester, Dilwyn and Dan sent their apologies. There was a very full agenda but most points received due consideration. The minutes of the last AGM, the Chairman's report and the Treasurer's report were all approved by the committee and will be submitted to the members at the AGM.

Thank-you to all members who sent in nomination forms, plans for the AGM are now under way and we look forwards to seeing you on the 18th April.

Members wishing to submit Helpline requests via email can use the email address helpline@quanta.org.uk or if you prefer to use traditional post, please send the Helpline request to me via the address printed inside the front cover of the Magazine.

Obviously, we cannot guarantee to answer every query we receive, but we will do our best! Where we have been unable to answer the queries, we may print the help request as an open request in the Magazine to ask if any of our readers can come up with a solution and of course, if readers feel that they have a better solution than we came up with, or would like to correct any errors we make, please write to us!

Q. I'd like to be able to print on both sides of the paper from a QL. My PC can do this without any problem. Can I do this from a QL too?

A. The feature is built into some Windows printer drivers but sadly is not usually accessible from QL emulators. One way around this is to use a program like my "2Sides" software for printing plain text files at least download it from:-

<http://www.dilwyn.me.uk/printing/index.html>

(scroll down the page until you find the "sides" package).

If anyone has any further information about printing on both sides of the paper from a QL, or knows of another program able to do this, please do get in touch.

Q. I have been sent some QL text and database files via email and no matter how I try to save them from Outlook Express, they always end up with the wrong filename extension - usually it adds a ".dat" to the filename which prevents them from loading when I copy them to a QL disk.

A. In general, once they have been saved to the PC, you can probably rename them before transferring them to the QL. Usually this as simple as clicking on the filename once, then either pressing F2 or clicking on the filename again to be able to retype it to correct the extension, removing the ".dat" being OK in many cases. Sometimes, you may find that certain QL extensions get in the way of the PC if they have been sent with a Windows-style "." separator instead of the QL "_" separator. An example is a BASIC

program, sent as "myprog.bas", which may trigger security software on the PC if it thinks it may be a PC program such as a virus. In this case, transfer it to the QL and rename it there if you have problems with removing the ".dat" extension on a PC.

If your QL disk transfer software has copied the filename to a QL disk "as is", e.g. it has copied to QL disk as something like "report_doc.dat" the '.' in the filename may present difficulties to QDOS systems in renaming it unless the filename is in quotes, e.g. `RENAME "flp1_report_doc.dat" TO "flp1_report_doc"` should work fine on most systems. SBASIC usually allows you to use a dot in unquoted filenames, but putting the filename in quotes should ensure it works on all QL systems.

Q. Is it possible to call hotkey definitions from within my programs?

A. For some hotkey actions, the answer is yes. There is a command called `HOT_DO` which will execute the action defined to a given key. For example, if you want to send something via the stuffer buffer without having to manually type Alt-Space to recover the content of the stuffer buffer, use a `HOT_STUFF` command to send the string to the stuffer buffer, then a `HOT_DO " "` command (a single space within the quotes) to effectively issue an Alt-Space keypress:

```
HOT_STUFF "some text"  
HOT_DO " "
```

This can be useful for testing a program action, for example, although it does not ensure the string is sent to the required program. For this, we would need a `HOT_PICK` function as well

If a `PICK` hotkey has already been defined, e.g. `ERT HOT_PICK("b","")` - no spaces between the second set of quotes, you could `HOT_DO` that definition to force the machine to pick BASIC, pause slightly for that command to have time to switch to BASIC then `HOT_DO` the stuffer buffer to make it send the command to the job, in this case BASIC.

Should you need to assign a hotkey temporarily for a given hotkey action, you can use a rather quick and dirty routine like this to temporarily find and assign an unused hotkey:

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```
100 key = 0
110 FOR a = 33 TO 127
120   IF HOT_TYPE(CHR$(a)) = -7 THEN
130     ERT HOT_PICK(CHR$(a),"jobname") : PAUSE 10
140     HOT_DO CHR$(a) : PAUSE 10
150     HOT_STUFF "some text" : PAUSE 10
160     HOT_DO " " : PAUSE 10
170     ERT HOT_REMV(CHR$(a)) : REMark remove the
temporary definition
170   END IF
180 NEXT a
190 PRINT"Oops, no undefined hotkey!"
200 END FOR a
```

This is rather an extreme example, and also not particularly good practice in a multitasking system where another program may define or change a hotkey.

Also, the above example is probably better written using the HOT_CMD function, which is expressly written to be able to send commands direct to BASIC!

Q. I'd like to set up a hotkey to send several lines of text at a time. Is this possible?

A. I didn't know this until I looked it up in response to this question. Apparently, a HOT_KEY function can include several strings, all of which are sent separated by newlines (CHR\$ 10). Here's an example, which can be used to type your address into a letter:

```
ERT HOT_KEY("a","address line 1","address line 2","and so on")
```

Q. I've seen some "colour theme" files on your website. My system does have "colour drivers" but how do I use these theme files?

A. They can only be used on systems with Window Manager 2 and preferably colour drivers too (colour themes don't work too well in just 4 colours!). Window Manager 2 is available in SMSQ/E version 3.00 and later, plus on QDOS systems with pointer environment version 2 or later (although with QDOS you'd still only get mode 4 colours).

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Here's a short BASIC program which can be used to install the colour theme files. The ones on my website at:-

<http://www.dilwyn.me.uk/gd2/index.html>

were created using Wolfgang Uhlig's QcoCo program, where you can define your own set of system colours. These files usually have 57 entries (hence the 57 in line 130) - the maximum number of entries in a colour theme list, or 57 separate elements such as "window background colour", "loose item selected", or "loose item unavailable". The benefit of using Wman 2 colour themes is that many modern programs out there which understand the process can use the same colour scheme and take on a similar appearance to each other, hence the name.

```
100 REMark apply colour theme to System Palette 0
110 theme$ = "filename_thm"
120 OPEN_IN #3,theme$
130 entries = 57 : REMark number of word length entries
in list
140 memory = ALCHP(2*entries)
150 addr = memory
160 FOR addr = addr TO addr+2*(entries-1) STEP 2
170   INPUT #3,colour_word$
180   colour = HEX(colour_word$(2 TO LEN(colour_word$)))
190   POKE_W addr,colour
200 END FOR addr
210 SP_SET memory,0,entries : REMark apply
220 RECHP memory : REMark release heap memory used
230 CLOSE #3
240 QUIT
```

Q. I'm interested in starting to write programs using pointer environment, using either TurboPtr or Easyptr, but am confused by all the terminology like "loose item", "information window", "application menu" and so on. Where do I start, as neither program seems to have a nice gentle introduction to the basics?

A. Probably the best introduction to this subject is Norman Dunbar's "Pointer Environment Idiot's Guide". Like most "Idiot's Guides" this one sets out to teach the basics from first principles. It won't teach you to program, that's beyond its scope, but it does teach you things like the terms in a simple and fairly non-technical way. The PE Idiot's Guide is available from the usual sources of free QL software, e.g. The PE Idiot's Guide from my website at:-

<http://www.dilwyn.me.uk/docs/ptr/index.html>

When our esteemed editor ran into some problems with his BOOT recently (the QL variety, not the footwear variety) a flurry of emails followed which made us realise that this is a subject often taken for granted by experienced users, while the less experienced ones may struggle with the topic, especially if new to the Pointer Environment (PE).

We also realised that there isn't that much by way of documentation out there on this particular subject.

Accordingly, I have donned my Helpline hat and have tried to produce a document out of that particular flurry of emails which should help those who are not as fluent in writing Boot programs for PE and Qpac2.

But first things first, let's quickly establish what we mean by terms like PE and Qpac2.

Pointer Environment (PE), as its name implies, extends the QL's operating system, in particular the CON (console) drivers in such a way that programs can be controlled with a little on-screen pointer (usually an arrow) using either a mouse or the cursor arrow keys on the keyboard. The new console driver also allows you to have overlapping non-destructive windows – if you use CTRL-C to switch between several running programs, the system will ensure that the contents of the on-screen windows are saved and restored as you switch from one program or another, which makes for a much more comfortable system to use than the original command-line QL where everything had to be done manually. All this is handled by the Pointer interface.

You may have noticed I used both the term 'Pointer Environment' and 'Pointer Interface' above. Many people take them to mean the same thing, whereas in reality they do have separate and distinct meanings. The Pointer Interface is the part which extends the operating system, the technical bit if you like, and the term 'Pointer Environment' usually refers to the user's viewpoint of this extended system.

A third term, Extended Environment, refers to a set of three extensions to the machine, including the Pointer Interface, Window Manager and Hotkey System 2

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The Pointer Interface handles the “interface” between the QL and the user – saving and restoring windows as you switch between programs, mouse routines, on-screen pointers and so on.

The Window Manager on the other hand is a set of routines which allow for similar and consistent windows across many types of programs. For example, the Window Manager can control how borders look, how the title strip across the top of a program might look and some standardised colour schemes for programs.

The third part of the system is known as the Hotkey System 2. If you have ever used ALTKEYs in Toolkit 2, you’ll have a basic idea of what all of these are about. You can define text or strings or commands to be attached to a key. But with hotkeys, in addition to the text, an “action” can be assigned, so that the system would know, for example, to load a given program when you press the keys defined. The Hotkey system also includes something called the Thing list. A “Thing” is basically just a general name for system resources, which can be programs, extensions and just about any other kind of add-on software, hence the vague name of “Things”. The Thing list is basically just the computer’s list of these added resources to help the QL and you keep track of everything.

Don’t worry too much about these little niceties like Window Manager and Things and so on – these things rarely go bump in the night and you can get going with the PE without having to know too much about all these, although it is always helpful to have a little familiarity with the terminology.

QDOS and SMSQ/E

Pointer Environment varies somewhat in terms of how it’s implemented on these operating systems. On QDOS systems (including all Sinclair ROM versions plus the Minerva ROM) you have to load three files which provide the necessary extensions to the operating system to allow you to use the PE. The three files are called:

PTR_GEN – this provides the Pointer Interface.

WMAN – this adds the Window Manager system

HOT_REXT – this adds the Hotkey System 2 and associated utilities.

SMSQ/E is the newer version of the QL operating system. The name stands for ‘Single User Multitasking for QL/Extended. The “extended”

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part of the name refers to the fact that the Extended Environment is built into SMSQ/E - there is no need to load the three files PTR_GEN, WMAN and HOT_REXT as you would need to do for QDOS.

There is an earlier variant of SMSQ/E for the QXL card. This is called SMSQ and it's a version without the 'E' part built in. This is the only variant of the SMSQ system where you do need to install ptr_gen, wman and hot_rext files.

If you do need to get hold of the three files for your computer, you can often get them from commercial pointer driven programs like Qpac2, QD and so on, they are included on the disks of many commercial software packages. You can also download them from my website at:-

<http://www.dilwyn.me.uk/pe/index.html>

or from Wolfgang Lenerz's website at:-

<http://www.scp-paulet-lenerz.com/smsqe/add1.html>

Memory Requirements

It must be emphasised that PE needs quite a lot of memory! The three files ptr_gen, wman and hot_rext alone can take between 50 and 60 kilobytes of RAM between them, before we even start to think of how much memory the system will need to store copies of the windows of each program running! It quickly becomes apparent that PE simply cannot be used on an unexpanded 128K QL - you realistically need a total of at least 384K of memory, preferably 512K or more to make realistic use of PE.

I remember being at a QUANTA workshop in the 1980s where Tony Tebby was about to demonstrate QRAM and he made it clear from the outset: "I've noticed how many people have expanded memory QLs nowadays, so we at Qjump decided to produce QRAM to help you use up all that memory."

512K RAM was a lot in those days.

Qram, Qpac1 and Qpac2

Qram was an application to make use of the Pointer Environment in its original form, back in the 1980s. It was superseded in time by the two newer packages, Qpac1 and Qpac2. The term 'Qpac' actually stands for

'QL Pointer Accessories', which just means little utilities to use within the Pointer Environment.

Qpac1 was released first and includes a number of small accessory programs such as an Alarm program for setting reminders, a Calendar program, a Calculator, a digital clock program, a Typer program and a Sysmon utility.

Qpac2 on the other hand is a small suite of menus and utilities such as a file manager menu, jobs control menu and a Button Frame where you can park programs while you use other programs. Qpac 2 is neither a replacement for Qpac 1 (the two packages are completely different) and nor is Qpac2 a synonym for Pointer Environment or the Extended Environment. Let's be perfectly clear on that last remark, as people do sometimes confuse the two things. Your Qpac2 disk includes a copy of the Extended Environment files, but also includes a whole lot more. Once you get used to Qpac2 you tend to find it's an indispensable addition to your computer!

Setting Up A Boot File

When using QDOS you need to install the three files ptr_gen, wman and hot_rext. This is done in a boot program, a short BASIC program which is run as the QL starts up. Boot programs are generally designed to run once, installing every extension you're likely to need, then start any other programs you might need.

A boot program to install pointer environment would consist of a few lines of BASIC to install the extensions in an area called the Resident Procedure space, or Respr space for short. These lines will generally consist of one command to allocate the space needed by each file, then an LBYTES command to actually load the files from disk, then finally a CALL statement to call some machine code within the files to activate them. Here's a simple example.

```
100 REMark the simplest PE boot program
110 base1 = RESPR(20904) : LBYTES flp1_ptr_gen,base1 : CALL base1
120 base2 = RESPR(19880) : LBYTES flp1_wman,base2 : CALL base2
130 base3 = RESPR(12768) : LBYTES flp1_hot_rext,base3 : CALL base3
140 HOT_GO : REMark activate Hotkey System 2
```

Line by line, this program installs the Pointer Interface (ptr_gen) in line 110. The next line loads the Window Manager (wman) and the following

line installs the Hotkey System 2. Finally, line 140 issues a HOT_GO command, which activates what is called the Hotkey job, a small program running in the background which waits for hotkeys to be pressed (ALT+another key) and carries out the action associated with that hotkey.

The numbers in brackets after the word RESPR in the listing refer to how much memory is needed to hold that file. The number must be equal to the length of the file in bytes. No harm will be done if the number is bigger, but that would be wasteful of memory. Please note that the numbers refer to the lengths of these files in the latest version of the Pointer Environment (version 2.03 of ptr_gen). The numbers may have to be different for other versions.

For those who have the LRESPR extension on their system - most QL disk interfaces and Toolkit 2 have the extension - you can simplify the program by replacing the laborious RESPR/LBYTES/CALL commands with a single LRESPR command for each file. LRESPR checks the length of a file, reserves that much memory for them, loads them and calls the machine code at the start of an extensions file to activate it.

```
100 REMark PE boot program using LRESPR
110 LRESPR flpl_ptr_gen
120 LRESPR flpl_wman
130 LRESPR flpl_hot_rext
140 HOT_GO : REMark activate Hotkey System 2
```

Some systems which do not activate the Toolkit 2 extensions may need an extra line containing a TK2_EXT command to enforce its extensions.

```
100 REMark PE boot program using LRESPR
110 TK2_EXT
120 LRESPR flpl_ptr_gen
130 LRESPR flpl_wman
140 LRESPR flpl_hot_rext
150 HOT_GO : REMark activate Hotkey System 2
```

Order Of Loading Extensions

Is there a recognised sequence that extensions should be loaded in? Well, yes there is, up to a point. For QDOS or QXL SMSQ this would generally be:

1. Lightning or Speedscreen (if used)
2. Toolkit 2
3. Pointer environment (ptr_gen, wman, hot_rext in that order)
4. Menu Extension (menu_rext)
5. Other toolkits and extensions
6. Define hotkeys, etc
7. After all extensions loaded, HOT_GO to activate hotkey job
8. Anything else the Boot program needs to do (e.g. set QL clock)
9. Chain in any second program.

Some people might tell you to swap steps 1 and 2 above. This doesn't matter too much. The above is a general guide only, some toolkit packages might tell you that they need to be loaded before or after certain other extensions - this is fine, just follow their instructions.

Boot For SMSQ/E

You would not use Lightning or Speedscreen on SMSQ/E systems, so step 1 would not apply if using SMSQ/E, and SMSQ/E includes the equivalent of the Extended Environment, so step 3 would not be needed either. You probably won't need step 2 either since SBASIC has all the Toolkit 2 extensions already built in. Much simpler, eh?

Boot For Both QDOS And SMSQ/E

Of course, if you are "soft-loading" SMSQ/E on a system which is normally QDOS based, but allows you to run SMSQ/E (e.g. Gold Card, Super Gold Card, Aurora SMSQ/E or QemuLator), you need to be able to load SMSQ/E in your Boot program (or at least give the option of QDOS or SMSQ/E).

SMSQ/E is generally installed with a command such as LRESPR FLP1_SMSQ_REXT in your boot program. The machine then goes through the reset sequence and eventually loads the boot program again. At this point there is the risk that the machine might go into a loop on versions of SMSQ/E which do not check if already installed, so the boot program needs to check if SMSQ/E is already installed. This can conveniently be done with a simple IF VER\$="HBA" test in the boot program.

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```
100 IF VER$<>"HBA" THEN
110   REMark only offer to install SMSQE if not already present
120   INPUT"1=SMSQE 2=QDOS";os
130   IF os = "2" THEN LRESPR flp1_SMSQ_REXT
140 END IF
150 REMark now install every other toolkit
160 IF VER$ <> "HBA" THEN
170   TK2_EXT : REMark ensure TK2 enabled on QDOS systems
180   REMark install pointer environment on QDOS
190   LRESPR flp1_ptr_gen : REMark in this order...
200   LRESPR flp1_wman
210   LRESPR flp1_hot_rext
220 END IF
230 LRESPR this....
240 LRESPR that....
   (and so on)
500 REMark define hotkeys
   (and so on)
800 REMark activate hotkeys job
810 HOT_GO
```

This Boot program starts by testing if the machine is currently running in a version of Basic other than SBASIC. SBASIC always has a VER\$ version string of "HBA", so if ver\$ is not HBA it is reasonable to assume we are running in QDOS. If it finds we are running in QDOS it asks if we want to use SMSQ/E (option 1) or QDOS (option 2). If we enter a 1 in line 120, then line 130 tries to load SMSQ/E. The machine then restarts and since it is now in SMSQ/E, lines 110 to 130 are skipped. We now need a further test (line 160) on whether the machine is currently in QDOS or SMSQ/E. If in QDOS, lines 170 to 210 issue a TK2_EXT command then install the Extended Environment files ptr_gen, wman and hot_rext. If in SMSQ/E lines 170 to 210 are skipped.

Other toolkits and extensions can then be loaded from line 230 onwards - this part is common to both operating systems (anything only required on one operating system can be separated using appropriate IF VER\$= statements as above).

Similarly hotkeys can be defined at line 500 and onward and finally at line 810 we issue a HOT_GO command to make sure that any hotkeys defined earlier in the program are made active.

Further Suggestions

Once you have got this far, you are in a good position to be able to start experimenting with developing your own boot programs. If you have Qpac2, study the examples in the Qpac2 manual which will help further your understanding of this subject.

Don't worry too much about minor complications like Toolkit 2 being built into your disk interface, or things like the AUTOTK2F1 commands of a Super Gold Card. This allows Toolkit 2 to be used on standard QDOS QL ROMs, but you needn't worry about not being able to use the Toolkit 2 if you use SMSQ/E on that system, because SMSQ/E has the equivalent of the Toolkit 2 commands built into SBASIC. If your boot program has a TK2_EXT command, don't worry too much about it having any significant effect on SMSQ/E either. SMSQ/E doesn't need a TK2_EXT command, but it doesn't mind if you use one.

Remember that SBASIC can have an extra complication concerning the use of extensions in what it calls "daughter" SBASIC jobs. SBASIC can have more than one program running at a time, in separate jobs and windows. The main SBASIC (Job 0, the one which SMSQ/E starts into) will install all the extensions you would normally use, and these would all be available to other SBASICs started, apart from any issues with some older extensions which stubbornly refuse to work in anything other than the "mother" SBASIC job 0. The "daughter" SBASICs can load their own extra extensions which are local to that particular program - other SBASICs won't see those extensions.

You can always see which extensions are loaded by issuing the EXTRAS command. This will list all of the extensions to a given channel. It is a handy way of checking if extensions are already present.

John Gilpin showed me a very convenient way of allowing a program to test if an extension name is already present. His short routine sends the output of an EXTRAS command to a file (top marks for using QL device independence!), then running through all the names in that file until either the name is found, or the end of file is found, which means the extension is not there.

```
1000 srch$ = "VIEW" : REMark test if VIEW command installed
1010 OPEN_NEW #3,RAM1_TMP
1020 EXTRAS #3 : CLOSE #3
1030 OPEN_IN #3,RAM1_TMP
```

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```
1040 found%=0
1050 REPeat loop
1060   IF EOF(#3) THEN EXIT loop
1070   INPUT #3,t$
1080   IF t$==srch$ THEN found%=1 : EXIT loop
1090 END REPeat loop
1100 CLOSE #3 : DELETE RAM1_TMP
1110 IF found% = 1 THEN
1120   PRINT srch$;' present.'
1130 ELSE
1140   PRINT srch$;' not present.'
1150 END IF
```

It is better not to try to use an extension in the same BASIC program as that which installs it. It will probably work OK on more recent Sinclair ROMs, Minerva and SMSQ/E but will almost certainly fail on ROM versions AH and JM at least, because these ROM versions can't cope with using an extension in the same program as that which loads the extension in the same place. Always best to load a second program, e.g. if your boot program loads extensions for a long BASIC game you have written, it is best to keep the boot program short and to the point, just setting up extensions and other essentials, then LRUN (or possibly MRUN) the main program separately. This is called chaining a second program.

What I'm getting at, apart from the specific problem with older ROM versions mentioned, is that it's best to keep your main Boot program short and easy to debug. As our esteemed editor found out a few months ago to his cost, obscure problems in long Boot programs can be very, very difficult to sort out. I have always found it best to have "minimal" boot programs. If your Boot program has to be long, try to split it into logical sections and keep it continuous and in-line as far as possible, without tangles of GOTO commands or complex sets of procedure and function calls. It might not always be possible to split up long programs, but I generally find that I have to, just in order to understand some of my rather long past boot programs! If I can't follow them, what chance is there for anyone else? Keep things as simple as possible - the KISS principle (Keep It Simple) - is usually the best approach.

[Dilwyn has described EXACTLY what my problems were and having taken his advice, I now have boot programs for all my QL type machines - including QPC II - which work on any/all of the systems I regularly use. Thanks Dilwyn for putting it all together so concisely. Also I was always taught the KISS System as "Keep it simple, Stupid!" I obviously didn't adhere to it though!! So who's STUPID and who's SIMPLE? - Ed]

To find the representation of a number N in base B you can divide N successively by B. The resulting remainders are the digits in base B, starting with the least significant. Thus, to find 129 in base 7 we first divide 129 by 7. This gives the quotient 18 and remainder 3. The number 3 is the last digit of the answer we want. We now divide 18 by 7 giving quotient 2 and remainder 4. The final answer is that 29 in base 7 is 243.

About half a century ago I asked a computer programmer from Ferranti to find the decimal representation of a high power of two. After all, the representation in binary is very simple. It is just one bit followed by a lot of zeros. The programmer was never seen again. Here is how we can use the above method of changing bases to do this (without disappearing).

First of all we set the appropriate bit in the computer store. Then we can divide that binary number by 10. The remainder is, of course, the least significant digit of our answer. The division is then carried out on the quotient we find from the first division. We now have the second least significant digit. This process continues until there is no number left to divide. Et voila, we have done it!

Actually, there are one or two problems. First of all how do we really divide a large number, spanning considerably more than 32 bits, by 10? When we have done that how do we store the, still large, number for the next division?

It seemed to me to be too difficult to program this operation in SuperBASIC so I will describe an Assembler version. Perhaps some hardy soul will find it easier in C.

An Assembler Program

To set the scene I first describe the storage to be used.

Label	Meaning
POWERB	Two bytes containing the power (0 to 32767)
STORE	4096 bytes holding the power of 2 in binary
ST_END	Points to the end of STORE
STACK	Points to 15000 bytes beyond STORE

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The space ending in STACK is used to hold the decimal results. It seemed convenient to point to its end rather than its beginning since STACK is filled backwards. This is because the least significant digits are calculated first.

Now comes a word or two about the method itself.

Since it will take a quarter of the time, I decided to divide by 10000 instead of 10. This produces four digits at a time, instead of only one.

The operation of division is carried out by the instruction DIVU.W. This instruction divides a 4-byte long word by a two-byte word, putting the quotient in the lower word of the long word and the remainder in its upper word.

Overflow will occur if the upper word of the long word dividend is greater than the divisor. We must see that this does not happen.

The complete operation of dividing the number in STORE by 10000 is carried out in a loop, taking a word at a time. There is little point in starting the operation until we have a non zero word. Thus the first task in a complete division is to scan STORE until we get the first non zero word. If there is none, then we have finished.

So, for a complete division, we start by putting the first non zero word into D1.L. Since the upper word is zero the division by DIVU.W cannot produce overflow. The quotient of this operation is the first word of the division of the complete number in STORE by 10000. This therefore replaces the first word we extracted from STORE to D1. We fill D1.W from the next word of STORE. D1.L now contains the remainder of the just completed DIVU.W in its upper word and the following word of the dividend. Since the upper word of D1.L is the remainder after division by 10000 it must be less than 10000 and so the next division cannot set overflow. This division again produces a quotient and remainder. Again we replace the word we have just extracted from STORE by this new quotient. D1.W is again filled with the next word from STORE. This operation continues until there are no more words in STORE left to be processed.

The remainder of the last division is the new set of four decimal digits in the answer. This is stored (backwards) in STACK.

To sum up, what we do is repeatedly to divide the complete number, N, in STORE by 10000, putting the quotient, N', in its place and setting the four digits of the answer in STACK.

The Assembler Code

; To set the number (one followed by zeros)

```

MOVE.W    POWERB,D1 ; Power required
LEA       STORE,A1  ; 4096-byte store
MOVE.W    #1023,D0  ; clear STORE
CL        CLR.L     (A1)+ ; to
          DBF       D0,CL ; ST_END
    
```

; The zeros are now set and it is time to set the "one"

```

LEA       ST_END,A0 ; End of 4096 bytes
MOVE.W    D1,D2     ; Power (P) to D2
LSR.W    #3,D2      ; P DIV 8
SUBA.W    D2,A0     ; A0 -> end of byte of 2^P
BSET     D1,-1(A0)  ; Set 2^P in STORE
LEA       STORE,A1  ; A1 -> STORE
LEA       STACK,A2  ; A2 -> STACK
LEA       ST_END,A0 ; A0 -> end of 4096 bytes
MOVE.W    #10000,D2 ; Set divisor
MOVE.L    A0,D3     ; Start of 2^P
SUB.L    A1,D3      ; Length of 2^P . .
LSR.W    #1,D3      ; .. in Words . .
SUBQ.W    #1,D3     ; .. less 1
    
```

; We now divide 2^P successively by 10000 keeping the remainders. Each remainder is a number between 0 and 9999 and represents four digits of the decimal answer.

; Each division is of the long number starting at the word containing the most significant bit. The process stops when all bits are zero.

; The first stage is to search for the most significant bit

```

LB0      MOVE.W    D3,D0 ; Count of words
          MOVEQ    #0,D1 ; Prepare for word entry
    
```

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LB1	MOVE.W DBNE	(A1)+,D1 D0,LB1	; Next word of 2^P ; Carry on until a bit found
	BEQ.S	LB3	; None found - finished
LB2	DIVU MOVE.W MOVE.W	D2,D1 D1,-2(A1) (A1)+,D1	; Divide D1.L by 10000 ; Replace 2^P by 2^P/10000 ; Get the next word to D1.W ; The MS word of D1 contains ; the remainder of the last ; division. Thus we will have ; set the new quotient in ; place of the old.
	DBF	D0,LB2	; Count through the rest of 2^P
	SWAP MOVE.W LEA BRA.S	D1 D1,-(A2) STORE,A1 LB0	; This is the true remainder - ; set backwards in "STACK" ; Reset A1 for the next go ; Repeat the operation
LB3	...		; Deal with the answer

I have not shown a completed program; it would be too long. If you want to use this code you can do it in one of two ways. You can complete the assembler code, assemble it, and use it by CALLing it from a SuperBASIC program. Or you can complete the program entirely in assembler.

Whichever way you do it you will need to input the power of 2 you wish to investigate and you will have to display the answer somehow.

If you are going to CALL the assembler routine then this could be by:

CALL asad,power%

where "asad" is the address to which the assembler routine has been loaded and power% is the power of two requested.

In this case the instructions:

LEA POWERB,A0

MOVE.W D1,(A0)

should be set at the start of the code and the instructions:

MOVEQ #0,D0

RTS

set at the end.

As it happens, I have written the code for this exercise completely in assembler. To show the sort of thing that happens, here is the seventh of eight pages (of a size fitting an unexpanded QL) for the 32767th power of 2.

2 ³²⁷⁶⁷	PAGE7								
21498892	87798155	16832862	82399399	13799342	83647365	21865975	26678912		
12645162	21399715	41874884	83342217	78822295	39685525	84149171	47259149		
27970556	48749736	24787475	88212098	21367340	57928822	51286546	39531908		
37983358	81373977	38916387	34958388	72119478	74338887	69792424	68828361		
35973639	32227317	15888845	63485814	12718732	98168126	11967254	46584586		
42928141	71178334	66631772	98395785	73916894	75884841	78986741	17442459		
54678713	81651772	88928987	62488194	95527835	52447893	79913181	53396833		
13898216	87782279	87845882	51219433	88026958	84395849	57237277	42881215		
59618848	23694189	97648126	19235488	51219642	35628287	58388631	86688844		
28162723	33945353	56787687	12889622	62245143	35828268	99731371	22662818		
18889948	82825936	86895543	85687836	81985935	95366856	83647757	18835429		
82686471	82272849	95179537	71856288	89328488	88518883	79168766	34882295		
83788225	81195368	71751324	84955281	22742937	46772412	73963529	48712472		
47998611	86116484	66727343	19653495	26159949	78282835	21265684	78856585		
65795136	98984835	67349588	22569532	25199189	71315844	96823312	17746289		
24283227	69872463	61586929	88874278	64628888	34178757	75871855	75685251		
86375139	63927416	63995968	99788877	88322148	87136558	38268518	85996883		
67476189	87395969	87992388	44718276	96678674	13988982	32285122	45882946		
98912847	93326944	85688661	46584828	69238422	62588166	11232343	33887484		
16248842	49684588	57915146	76384918	24545485	67323341	71914892	67578827		
64726421	86286989	14774254	89754465	36211759	38299184	27435772	35877512		

Launch of new SellMyRetro website. Rich Mellor

During 2009, RWA Software decided to launch a new dedicated retro/vintage computing and electronics trading website - SellMyRetro.com. Following the changes to eBay fees last year (now taking around 10% of the selling price and forcing you to list items with no inland postage), we found that we were paying over £100 per month in fees to eBay. Initially the idea of the site was to reduce these fees for sellers, by offering them a real alternative.

We decided that what we needed was a site which would be more than just another auction website - it would provide background information on the types of items which may appear in each category, and also act as a venue to bring traders, collectors and users together. Anyone can register and purchase items on the site, but traders can also decide to open their own free website just to promote their own services, without needing to list any items for sale.

We are offering free listing fees until June 2010, and have currently over 200 auctions running on the site, with over 100 visitors per day. We are sure that this will increase as the momentum starts to roll! -- Try out our new site:

<http://sellmyretro.com>

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Would you like to get a test issue of QL Today to see how good QL Today is? No problem, you can easily get one or two issues.

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... and issue 1 and 2 with the first parts of Tony Tebbys article are still available, of course. If you subscribe now, you will start with issue 1 ... which will be shipped as soon as you subscribe!

Points of View

Steve Poole's articles in recent issues of QUANTA Magazine on Chaos and Modulo Arithmetic have continued to raise some comments which I am publishing here and I am grateful to Steve for replying to them immediately on return from a trip to the Alps. {What a dedicated contributor}. Keep your comments coming, members. - Ed

MORE CHAOS?**Herbert L Schaaf**

I've also been intrigued by the series of articles in QUANTA started by Steve Poole in the Aug/Sept 2009 issue, page 42, with responses by George Gwilt and Alex Wells in the Oct/Nov 2009 issue, page 36 and George Gwilt again in the Dec 2009/Jan 2010 issue, page 6.

Jonathan Hudson's Perl4 for the QL can do math with arbitrarily big numbers and I used it to work out the iterations using 128 digits. The results (rounded to 12 decimal places) for the first 10 decades are:

Iteration	Calculated Value
10	0.384630965819
20	0.418895025015
30	0.046399476843
40	0.320187061722
50	0.062236194436
60	0.004902722520
70	0.553082382683
80	0.119639806682
90	0.310929085362
100	0.742886540031

I found that to get 'agreeable' results, the number of digits used in making the calculations was roughly 3 + 3 times the decade. Thus agreement at the 40th iteration called for 3 + 4*3 or 15 digits. Hint: ABACUS uses 14 digits. The IEEE agreed to the 5th decade, implying it used 18 digits. The IEEE did not agree at the 6th decade, implying that it used less than 21 digits. To reach agreement at the 7th decade implies 24 or more digits, and the 10th decade is OK when using 33 or more digits.

The semantics of precise, accurate, exact, elude me. But the point Steve made is well taken; truncation, rounding, and machine quirks

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can surely lead to different answers when doing recursive calls. And as Alex Wells pointed out, these may just be "higher-precision approximations".

As a picture can be worth many words, I submit chaosgrafun_bas for your enjoyment, a graphical display of what the QL does with this chaos example.

On the right side the graph of the function is shown, and a line ($y = x$). As each iteration takes place we trace its path around the graph. In the left window we show a closer view of one region where the function = itself. It also maps to itself at 0,0; but 1,1 is more fun to watch. It doesn't look like it will ever hit 1 "exactly".

```
100 REMark chaosgrafun_bas
110 REMark HL Schaaf Feb 10, 2010
120 REMark ref: Quanta articles
130 :
140 REMark f(x) = y = 4*x - 3 * x^2
150 DEFine FuNction chaox(x)
160  RETurn 4*x - 3*x*x
170 END DEFine chaox
180 REMark rises from 0,0 to peak at x=2/3, y=4/3
190 REMark crosses x axis at 0 and 4/3 and self-maps at 0 and
1
200 :
210 WMON
220 SCALE 2,-.15,-.15: PAPER 0: CLS
230 SCALE #2, .2,.9,.9 : PAPER #2,7 : INK #2,0 : CLS#2
240 INK 7
250 LINE -1,0 TO 2,0
260 LINE 0,-1 TO 0,1
270 LINE -1,-1 TO 2,2
280 FOR x = 0 TO 2 STEP 1E-3
290  POINT x, chaox(x)
300 END FOR x
310 :
320 LINE #2, .9,.9 TO 1.1,1.1
330 FOR x = .9 TO 1.1 STEP 1E-4
340  POINT #2,x,chaox(x)
350 END FOR x
360 :
370 iter = 0
380 x = .5
390 POINT x,x
400 POINT #2, x,x
410 REPEAT iters
```

```

420 oldx = x
430 iter = iter + 1
440 y = chaos(x)
450 LINE TO oldx,y
460 LINE TO y,y
470 :
480 LINE TO #2, oldx, y
490 LINE TO #2, y,y
500 :
510 PRINT #0;iter!!y,
520 IF iter >= 70 : EXIT iters
530 PAUSE
540 x = y
550 END REPEAT iters

```

Modulo Arithmetic

George Gwilt

I was amused at Steve Poole's article on Modulo Arithmetic. Unfortunately it seems to me to be marred by a confusion and an inaccuracy. Let me explain.

Here's the confusion.

At first I could not see how $-3 + 1/2$, (which is the same thing as $1/2 - 3$) could possibly be anything other than -2.5 . To check this, I asked an independent witness, my wife, if she could tell me what $-3 + 1/2$ was. She came up with the answer -1 . Her reasoning was this:

1. Minus three plus one is minus two.
2. Minus two divided by two is minus one.

Oddly enough this is exactly the answer that my assembler, GWASS, gives, unless you tell it to evaluate expressions.

The reason that the answer -1 is produced is that my wife, with her American education, did not use the accepted convention that multiplication and division take precedence over addition and subtraction. The correct answer, of -2.5 , is easily seen to be produced by the inclusion of judicious brackets. Thus:

$$-3 + (1/2)$$

is easily seen to be -2.5 .

Why then does Steve say that it should be -3.5?

The answer is, of course, that the plus sign should not have been printed. So, eliminating the plus sign we see that $-3 \frac{1}{2}$ is clearly -3.5, and this was what Steve intended.

Now I come to the inaccuracy, which concerns DIV and MOD.

Steve, quite rightly, says that SuperBASIC gives:

-3 DIV 2 as -2, and
-3 MOD 2 as 1.

He then tells us that this represents the number -2.5. This, of course is inaccurate. To show what is really happening I must now define DIV and MOD carefully.

DIV and MOD applied to two integral parameters A and B give integers derived from the quotient A/B . DIV gives the integral part of the quotient and MOD gives the integral remainder. The value of the integral part of the quotient is its rounded value, which, of course, depends on how you define the rounding. There are four ways of rounding: to nearest, to plus infinity, to minus infinity and to zero. Whichever way is chosen the value for the operation MOD is found from the formulae:

$A \text{ DIV } B = Q$, and
 $A \text{ MOD } B = A - Q*B = R$, say

As it happens, SuperBASIC rounds to minus infinity, or, as you might say, rounds down.

Given the results of DIV and MOD, Q and R in the above example, we can find the original dividend and the complete quotient. They are:

$\text{DIVIDEND} = Q*B + R$
 $\text{TRUE QUOTIENT} = A/B = Q + R/B$

In Steve's example, $A = -3$ and $B = 2$. Hence

$Q = -2$
 $R = A - Q*B = -3 - (-2)*2 = -3 + 4 = 1$ (which is true)

The full quotient is, of course, $-3/2 = -1.5$. It is also given from the above formula as:

$$Q + R/B = -2 + (1/2) = -1 \frac{1}{2} = -1.5$$

To round this off (neither up nor down) I suggest that if you plan to use the program on page 56 you add the following after MOD j in line 1020:

$$,(f \text{ DIV } j)*j + (f \text{ mod } j)$$

The result might surprise you even more than the original's.

I look forward to many more of Steve's articles.

[Don't we All? - Now to Steve's replies. The first one was a very hurried note before he and his wife Annick left for the Alps and the second one was written on his return. - Ed]

A RESPONSE

Steve Poole

1)

My initial comment to George's remarks is that the original article would have been clearer had I used a different notation, so, say Two and a half would have been $2\frac{1}{2}$. I will study Sinclair's DIV and MOD results to see if I can find any logic behind their way of handling things.

However, the article has succeeded in revealing that MODULO should be used with caution, as it is not self-evident the way it works.

2)

My original article was written to make people wary of the unexpected results produced by QL modulo arithmetic. George Gwilt's reply is helpful in revealing how the QL arrives at its results. But I would like him to go one step further, and show us in what way such QL Modulo arithmetic is any way useful in respect to negative values.

At school we were taught sign conventions for divisions and how to build fractions in a logical series : DIV and MOD do not adhere to these rules. Minus one & one half ($-3/2$), minus zero & one half ($-1/2$), zero & one half ($1/2$), one & one half ($3/2$) etc

Yet Sinclair Modulo does not follow this simple convention : Again $-3\frac{1}{2}$ results in -2.5 instead of -3.5 !! (Just look at the program v26 i6 for other examples).

Perhaps someone can enlighten us some more, as QL literature has never given us a complete description of what exactly they intended DIV and MOD to do. It is not the results in the positive series which astonish, but those in the negative ranges...I wonder how many people actually use those?

After re-reading Jan Jones' book on SuperBASIC, I think this (Modulo) quirk is the final one I have encountered and will end my series of articles on problems in programming on the QL. For most of the quirks I have given workarounds and hope they will have been useful to members. I hope other members will share their solutions to any problems they may have encountered.

QUANTA NEWS

Dilwyn Jones

R WAP Software looks ahead to 2010

2009 proved to be a good year for RWP Software with the Sinclair ZX81 Keyboard Membranes, the Sinclair ZX Spectrum faceplates and the Sinclair ZX Spectrum DivIDE Plus interfaces proving to be popular lines. Keyboard membranes and microdrive based software also continue to prove popular.

We have also continued to build on information sharing, with the ZX80/ZX81 forum proving popular and leading to some new software for the Sinclair ZX81 during 2009 and 2010

http://www.rwapservices.co.uk/ZX80_ZX81/forums/

The Sinclair QL Wiki has continued to be developed with even more information available on Sinclair QL hardware and software. As part of this, we have commenced a project to safeguard as much QL software as possible by storing it on the PC (using Q-emuLator), which will help to ensure that it remains available into the future. Unfortunately, we have struggled to get working copies of some software, including the text adventure FunFear, Professional Poolster and Talent's Strip Poker - see:-

http://rwapadventures.com/ql_wiki/

Finally towards the end of 2009, we launched SellMyRetro.com - an alternative to eBay which is aimed squarely at the retro and vintage computing and electronics scene. We have no listing fees until June 2010 and this is an excellent way of having a good old clear out. There are over 200 active auctions at present - although they are mainly items for the

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Sinclair ZX Spectrum and the Sinclair QL. We average over 100 visitors per day, even though we are a fairly new site, and have continued to develop the software which drives the auction website. If you are interested in the software behind the site, you may be interested in joining the newly launched discussion forums

<http://www.rwapservices.co.uk/enuuk/forums.>

SellMyRetro -

<http://www.sellmyretro.com>
Sell My Retro website screen dump



QaLendar 2010

That most essential of QL accessories, the QaLendar 2010, is now available from my website at:-

<http://www.dilwyn.me.uk/gen/calendar/calendar.html>

to download as a calendar for 2010 in Word .doc or PDF file formats (2.6MB and 1.2MB respectively).

If you want to create your own calendars, several QL calendar-making programs are available to download from the Utilities page on my website at:-

<http://www.dilwyn.me.uk/utills/index.html>



QaLendar Website

QL Article In Amiga Future

Anton Preinsack writes:

The new issue of "Amiga Future" is out, including an article about the Sinclair QL (from me ;-))

<http://www.amigafuture.de/kb.php?mode=article&k=3377>

The website lets you choose German or English.



Amiga Future Website

Software Blitter For QL From Linus Torvalds!

Urs König has set up a page dedicated to Linus Torvalds (Linux king!) and his early days on the QL. One of his QL software projects was to write a GMOVE extension, a kind of graphics blitter in software for rapidly moving data such as graphics about, originally published in a Finnish magazine in November 1986. Urs has made the listing available (including a small correction to the original article's listing), along with a video showing it in action. Urs's page about Linus Torvalds is at:

http://www.glvsiaguar.homepage.bluewin.ch/QL_Linus_Torvalds.html

while the video (about 3 1/2 minutes long) can be seen at:

<http://www.youtube.com/watch?v=pxx6brHlwJl>



And on the 27th of January, he must have felt a little mischievous, because he wrote on the QL-Users mailing list:

"Today Apple launched their latest product, the tablet-like PC named iPad (fka iSlate). In a Hollywood-like launch press conference at the Yerba Buena Center for the Arts (YBCA) in San Francisco, CA Steve (Jobs) made one of his best performances ever. But Steve's keynote speech somehow got back in time to 1987 and related to Clive's last computer, the Z88. Don't believe? See:

<http://www.youtube.com/watch?v=wL78UNSoaic> "

Just Words! Website

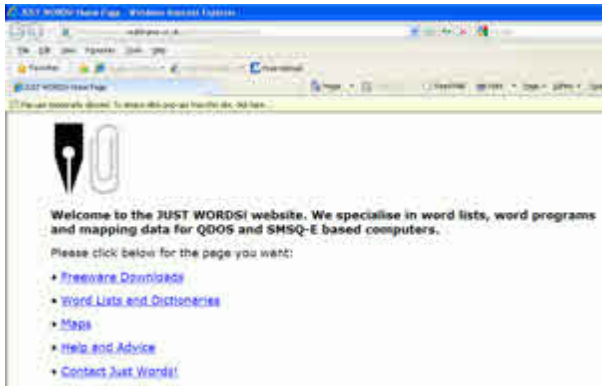
The Just Words! website will shortly have a new address:

<http://members.multimania.co.uk/geoffwicks/justwords.htm>

This is not a new host, but is the latest development in the hosting transfer of the Tripod sites. Currently automatic redirection from the former Lycos host is taking place, but this will shortly be ended.

Just Words! is still reviewing the short and long term future of the site and is currently analysing traffic patterns on the web pages. There has been a recent increase in visitors to the site, but there is evidence that about one tenth of the visitors are non-QL-ers who have come to the site via search engines.

Options for the future range from the complete closure of the site to its expansion. Just Words! believes that the QL community is currently in a state of flux in which major developments could occur in the near future. Should Just Words! finally decide the website could have a long term future then a move to a more secure host is planned.



Just Words! Website

Lear PCB Cad

This program is now at version 7.09 at the time of writing. Malcolm Lear reports that the development of the pointer driven version is now pretty stable and that the original non-pointer version may soon be discontinued.

QUANTA Magazine

Here is a list of changes since the last version we reported on in the previous issue of Quanta:

7.07 Removed HPGL (Imperial) from export selection. All HPGL plotters should have a resolution of 1016 units per inch or 40 per mm (0.025mm). HPGL pen size selection now easier to use. Incorrect VS command in HPGL plotter header removed. Corrected bookmark position errors in PDF user guide. Bug removed that crashed program when overwriting HPGL export files. This was another problem caused by the path rewrite in version 7.03 (this time a small typo).

7.08 16-12-09 Further research suggests that the HPGL step size option is not required and has been removed. Postscript export now has filename in header not path. HPGL file extension changed from .spl to .hpg. Major revision of export menu. Easier to use layout. Cursor is not now redrawn twice when doing area copy or move.

7.09 Cursor not left on screen after area delete. Element layer exchange improved code. Fixed recursive redraw when switching to and from library in mouse mode.

QL Today

Following on from our report that QL Today magazine had gone down to 32 pages as of the 14th volume (September 09) it is great to observe that the following issue had 8 more pages (December 09). This was made possible because Jochen Merz was able to post the magazines from Austria at a significant saving in postal costs compared to posting the magazines from Germany or The Netherlands. However, a possible combination of the bad weather across much of Europe and varying postal services in different countries meant there was a wide spread of dates at which readers got their issues, with some only getting their copies at various times in the first half of January, leading to some correspondence on the matter on the QL-Users mailing list over the new year period and early January!

The good news was that Tony Tebby's fascinating articles on QL development and the last 25 years have continued, despite causing the editorial team a few problems in terms of the number of pages these wonderful articles have taken. QL Today Editor Geoff Wicks writes that "very slowly we are now clearing up the backlog of copy" which must be a



very happy situation for a magazine editor to be in!

If you are not already a subscriber, take a look at the QL Today website at:-

www.QLToday.com

to see what QL Today is like and how much it costs.



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Welcome

Quo Vadis Design sells software for the Sector One/Quo (Leap computer (QL) and variants including a new OS called SMSQ.

The QL is a computer in its 25th-year Anniversary.

Software emulators of the QL now exist which can run on a PC/Mac with Windows/Linux or Mac Operating systems.

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News

- QVD QL News Blog - keep up to date
[News Blog](#)
30/08/2009
- Quo Vadis Design Website Launched
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Tony Tebby puts forward his view of the development in computing over the past 25 years in the latest issue of QLToday

Check the QL News Blog on our website for updates. www.ql-qvd.com/blog



Subscriptions taken online

Q L User Guide notes:

Tony Hill's - QL User Guide.pdf is now available from the QUANTA Software Library.

The full version is ONLY available to members, while a separate trial version is available to all. The trial version has been made available to show non-members what they are missing. This is a restricted version of 52 pages compared to the full version which has 463 pages and so hopefully may persuade newly interested QL'ers to join QUANTA where they will find the FULL version. in the members section.

At 2.80 .MB, the FULL version should fit on an ED disk - QL Formatted to 3.2 MB, even on a 4 MB Floppy - PC Formatted to 2.88 MB but haven't tried it yet as my QL+ED drives are in the attic. The trial version at 505 KB file size will go on a 720 KB DD disk, a HD disk or an ED disk. There is little change in size when zipped - PDF's do not compress much with Zip if at all. Either version can be supplied on a CD - Library ordering instructions in members' Membership Guides.

In time, as the new website comes online, both versions will be available to download from the website - the full version to members only, the trial version to anyone, as long as they have the "join-quanta" password (which is case sensitive, lower case entry required).

Whilst the FULL version has been set up as carefully as possible - if you find any inaccuracies in the text, Tony Hill will be pleased to hear about them and will action a correction were necessary.

Incidentally if anyone finds that the listings of programs do not work then let us know and we will try to find a solution, OR if anyone finds that the listings of programs do not work and can put them right that will be even better.

Directions for use

To Move to a particular section >

Type in the particular page reference in the FIND BOX > ie KW0

Press ENTER >

The Reference Number KW0 (this is KW 0 (zero) 0 is a NUMBER) will be highlighted on the FIRST PAGE

Press ENTER a SECOND TIME and you will go direct to the Index Page.

The other Index location Numbers are on the First Page - QL User Guide

QL Introduction	- UG12	- to find UG8 - SEARCH UPWARDS
Beginner's Guide	- BG1A	- SEARCH DOWNWARDS
Reference Guide		
Keywords	- KW0	- SEARCH UPWARDS
Concepts	- C10	- SEARCH DOWNWARDS
Applications Software		
QL Quill	- Q0	- SEARCH DOWNWARDS
QL Abacus	- AB0	- SEARCH UPWARDS
QL Archive	- AR0	- SEARCH DOWNWARDS
QL Easel	- EA0	- SEARCH UPWARDS
Information	- IN0	- SEARCH DOWNWARDS

Any of the above numbers will find you the First Page.

The variations of SEARCH UPWARDS OR DOWNWARDS will be sorted out for the next version.

SINCLAIR QL'S 25TH ANNIVERSARY YEAR IN RETROSPECT – PART 1 **Urs Koenig**

[Urs has promised QUANTA to write a three part article about the QL's 25th Anniversary Year. We hope to publish parts 2 & 3 in the next issues of QUANTA Magazine. Thank you Urs for this nostalgic look back over 25 years. We all look forward to the next installment. - Ed]

2009 and therefore the year of the QL's 25th anniversary is over by now. Wow, a quarter of a century past so fast!



close friends to buy a QL and to move away from their VIC20 and C64 machines. Before the QL our main computing interests were electronics and gaming. The QL changed this at least for me and programming became my biggest computing interest. For the coming 2 years I explored the QL in detail and wrote a lot of software. While still in education and during my army services I traded QL stuff to fund my computing activities (QL expansions). In autumn '89 I released my first commercial software package Thor-Desk for the Thor, QL, ST and AMIGA which later – after the Thor failure – was renamed and relaunched as QTop.



The 15 years old binary of QTop running under SMSQ/E

Sinclair QL Re-Releases

RWAP Services

We have been working hard to safeguard the future of the Sinclair QL through beginning to compile a repository of QL titles.

The repository enables people to see what software was produced for the Sinclair QL and also to be able to purchase working copies when their microdrive cartridges fail. Where we can, we obtain permission from the copyright holder to re-release items on the market.

This has enabled us to bring some of the titles back to the market as well as re-kindle interest in the Sinclair QL and its emulators.

QL favourites brought back to life include:

Jungle Eddi
The Lost Pharaoh
Pengi
Microdeal Flight Simulator
Microdeal's QL Hopper
Microdeal's The King
Cuthbert in Space

We still retain our existing catalogue, including:
Open Golf
Stone Raider II
Hoverzone
Deathstrike
Flightdeck

All games are available on disk or for use with Q-emulator on the PC for **ONLY £5 each**

Microdrive versions also available (£10 each)

Visit the QL Wiki for more details on software, books and hardware for the Sinclair QL:
www.rwapadventure.com/ql_wiki

RWAP Software

3 Dale View Court

Fulford

Stoke-on-Trent

Staffordshire

ST11 9BA

TEL: 01782 398143

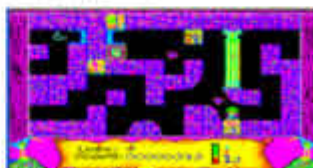
Email: rich@rwapsoftware.co.uk

Website: www.rwapsoftware.co.uk

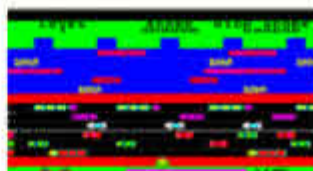
Or sellmyretro.com



QL Pengi by Joachim Metz



The Lost Pharaoh by Talent



QL Hopper by Microdeal



The King by Microdeal



Cuthbert in Space by Microdeal

QUANTA Magazine

Being left alone with some brand new sealed German QL's I got back to hardware and offered a hand made limited edition SuperQL called ExeQtor in autumn '91. At that time my local friends moved away from the QL (and also away from ST and AMIGA) to PCs but I stay (loyal) with it until today. Maybe I was easy to impress at that young age but there must be something serious about the QL since fascinated me for so long. As a kind of tribute to the QL my 1991 Christmas card pictured the ExeQtor.



1991 Christmas card pictured the ExeQtor with S/N 0001

'92-'99

Well, the QL market shrunk every year and after my army services I had to look for employment. A good friend worked at AGRO-DATA, a local software house and service provider. He raved about software development with 4GL tools and relational databases under SCO-UNIX. I went for an interview and got employed. January 1992 I started my duty at the company and stayed with them until last summer with changing roles and responsibilities. During this long time I got to be expert in both UNIX and Windows, object oriented programming, relational database, design, consulting and management. In all those years I had flashbacks once in a while showing me that highly appraised feature X of product/company Y was already in the QL and how easy task Z could be done on the QL compared to the modern systems. My QL activities faded out in '95 and I became a silent follower of the scene. OK, there was my contribution to Gerhard Plavec's QL-PD CD-R in '98 and the setup of my QLvsJAGUAR website in '99.

'00-'07

Together with my old QL colleague Markus Dettwiler I made a trip to QUANTA's QL2000 show in Portsmouth. This was my first QL show for more than 5 years. The QL equipment which well survived three moves was

QUANTA Magazine

becoming a problem when I started my family. Before, it was all well packed and stored away for years, just after Christmas December 2001 I reviewed my QL software and documents and it reminded me - beside other things - of the QL premature launch. From then on almost every year I took some time to announce the launch anniversary on January 12th on the Internet. Based on the feedback received I learned that even the world changed a lot over the years but friends from the QL age were still around. From then on I attended QL shows whenever they were at an attractive place. The '02, '03, '04, '06 shows were good excuses for travelling. Whenever possible I had my family with me extending the trip to a full blown holiday. It was very sad to see that the North American shows were discontinued after Al Boehms stroke.



Audience at the last North American QL show listening to Jim Hunkins talk on the QDT File Manager

'08

In 2008 I had my personal “anniversary”. So here I was at age of 40, in the middle of life, proud of my great family, good but demanding job. For several reasons – reschedule work-life balance as my main reason – I decided to leave PC-WARE (today's name of AGRO-DATA) and handed in my notice at end of August. I agreed to stay until July '09 handing over my management tasks until March '09. Beside many other personal projects I wanted to use the new freedom to make something big at the QL's 25 “birthday”.



My last piece of PC software written at PC-WARE, the touch screen Point-Of-Sale application KVS, installed at > 2,500 retail stores in Switzerland. The menu is based on design work made for Qtop on the QL.

'09

Originally I planned to do a big thing, a wide-spread PR case, media breakfast with Sir Clive and the Sinclair Research '84 crew, etc. at the same venue as the launch 25 years ago. The idea was on my mind since summer 2008, I even set some dates in my agenda for preparing it, but as you can imagine there was just not enough time and priorities in my life to do such a thing. Those dates in the agenda passed with work and life and in the end I had only some hours on Sunday Jan 11th 2009 – a day with very bad weather in Switzerland (very cold, no sun) to do some PowerPoint, Photoshop and html work, set the battle plan for the mailshot, etc. On Jan 12th all that had to be done between breakfast with my family and start of work in the office, was to upload the html pages, send the emails and post to selected NewsGroups. The rest is history.

Wanna know the (hi-)story? -> Part 2

Lucerne, January 29th 2010
 Urs König

<http://tinyurl.com/ql-is-25>
 (page updated January 12th 2010)

In the past I have written several 3D perspective programs for the QUANTA magazine. It is often necessary to convert coordinates between Polar < > Rectangular formats, so I thought I would include routines to do so here.

For those of you not familiar with Greek mathematical expressions, Phi is bearing and Theta is slope. To use 3D coordinates, supply x, y & z to get bearing, distance & slope, (or the inverse). For 2D coordinates, supply x & y (with z=0) to get bearing & distance (where slope=0).

The program gives examples calls for 2D and 3D, using two different graphical output methods to prove the accuracy. Calls to the inverse procedures also prove the method.

The procedures take six parameters, three for input and three for output. As the internal parameters are local, these are both 'Black Box' routines, that is to say, the actual calling parameters are not modified, the output parameters return the results. If you wish to alter the calling variables afterwards, LET each input_var=output_var... Neat and tidy! Purists might say the output parameters might simply be omitted. That's just a question of clarity.

The Rec_Pol procedure must not be supplied with a zero or negative radius, as it will fail. Neither can the Pol_Rec routine return a zero or negative length radius. (Turtle graphics easily manage such values!)

The code to calculate bearings, could be optimised, but I leave it as it stands, as its function is clear and therefore instructive. One optimisation could be that there must never be bearings of exactly +/- 90 degrees with simultaneous equations, where vertical gradients are impossible!

Lines 340 to 360 show the returned results graphically, using polar coordinates with turtle graphics, then XORing over screen coordinates drawn with LINE. The circle represents the overhead '3D' coordinate. Normally, this XORing, (using OVER -1), will overprint the output, meaning an accurate conversion will 'undraw' the line.

Lines 380 to 440 ensure that converted values are almost exactly correct, (taking into consideration slight rounding errors with the QL trigonometrical angular functions), and serve to test the program. This

QUANTA Magazine

self-test uses '=' operators, whose six-figure accuracy is sufficient for 'undrawing' line output. If there is a definite error, the program will pause and show first the original polar, then the rectangular, then the (returned) polar coordinates as a debugging aid.

If you wish to slow output, change the (PAUSE) 'ps' variable to, say, 50 for a one second delay.

These routines have all sorts of applications. One example is for mapping. If you convert map eastings, the earth's radius and northings to Rectangular coordinates, you can draw maps in perspective from any axis direction, and the problem of projecting curved surfaces on to flat ones is therefor solved! How? By first rotating the sphere polar coordinates by the desired orientation before converting to Rectangular coordinates...

This article and program took me a whole day to write, as I got bogged down a little until I realised there were exact input range limitations on trigonometry angles. If you add code to keep your values within the listed ranges you should have no problems. (I have not included such code here as it would mess up the accuracy self-testing code. The listing is complicated enough as it stands).

If you fancy a programming project, why not try to make the program accept nul or negative-radius values to make it fully compatible with turtle graphics.

```
100 ::
110 REMark Rec_Pol_bas by S.Poole, v26jan08 for Quanta.
120 CLEAR: OPEN#1,con_16: WINDOW 512,256,0,0: CLS: INK 7
130 SCALE 100,-50,-50: PENDOWN: OVER -1
140 :
150 REPEAT loop
160 REMark pp=phi=eastings=longitude=bearing=azimut.
170 REMark rr=radius=distance
180 REMark tt=theta=northings=latitude=slope=elevation.
190 REMark Always initialise global variables for QDOS.
200 xx=0: yy=0: zz=0: ps=1
210 :
220 REMark Example 2D call. Only use first two parameters:
230 REMark Stay within bearing range of -180 to +180:
240 REMark Do not use a radius <=0:
250 REMark Keep radius within scale range:
260 Pp=RAD(RND(-180 TO 180)): rr=RND(1 TO 50): tt=0
270 Pol_Rec Pp,rr,tt,xx,yy,zz
280 po=Pp: ro=rr: ox=xx: oy=yy
290 Rec_Pol xx,yy,zz,Pp,rr,tt
```

QUANTA Magazine

```
300 :
310 REMark Example 3D call. Use all three parameters:
320 REMark Stay within slope range of -90 to +90:
330 tt=RAD(RND(-90 TO 90)): ot=tt
340 Pol_Rec Pp,rr,tt,xx,yy,zz
350 Rec_Pol xx,yy,zz,Pp,rr,tt
360 :
370 REMark Overprint returned coordinates with XOR:
380 LINE 0,0: TURNT0 DEG(Pp): MOVE ro: CIRCLE xx,yy,1
390 PAUSE ps: LINE 0,0 TO ox,oy: CIRCLE xx,yy,1
400 :
410 REMark See if returned values are correct:
420 dud=1: IF po==Pp: IF ro==rr: IF ot==tt: dud=0
430 IF dud THEN
440 OVER 0
450 PRINT DEG(po),ro\xx,yy,zz\DEG(Pp),rr,DEG(tt)
460 BEEP 12345,67: PAUSE: OVER -1
470 END IF
480 END REPEAT loop
490 ::
500 DEFine PROCEDURE Rec_Pol(Rx,Ry,Rz,ph,rs,th)
510 LOCAL x,y,z: x=Rx: y=Ry: z=Rz
520 rs=SQRT(x*x+y*y+z*z)
530 IF rs: th=ASIN(z/rs): ELSE ph=0: th=0: RETURN
540 REMark get bearing from x & y SIGNS:
550 IF x=0 THEN
560 IF y<0: ph=-PI/2: RETURN
570 IF y=0: ph=0 : RETURN
580 IF y>0: ph=PI/2 : RETURN
590 END IF
600 IF x<0 THEN
610 IF y>0: ph=ATAN(y/x)+PI: RETURN
620 IF y=0: ph=PI : RETURN
630 IF y<0: ph=ATAN(y/x)-PI: RETURN
640 END IF : ph=ATAN(y/x) : RETURN
650 END DEFine
660 :
670 DEFine PROCEDURE Pol_Rec(Pp,Pr,Pt,Px,Py,Pz)
680 LOCAL p,r,t: p=Pp: r=Pr: t=Pt
690 Px=r*COS(p)*COS(t)
700 Py=r*SIN(p)*COS(t)
710 Pz=r*SIN(t)
720 END DEFine
730 ::
```



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Stretford, Manchester, M32 9EH (UK).**

Tel. +44 (0) 161 865 2872

Email: membership@quanta.org.uk

Visit the QUANTA Web Site

<http://www.quanta.org.uk>

Next QUANTA Sponsored Event **Annual General Meeting 2010 and Workshop**

Date: Sunday 18th April 2010

Workshop from 10.00 a.m to 4.30 p.m. (Doors open from 9.00 a.m)

Annual General Meeting at 3.00 p.m prompt.

Venue: BRC Community Centre

'FIRCONE', 1237 Stratford Road, Hall Green, Birmingham, B28 9AA

**Full details from
Chairman@quanta.org.uk**

SUBGROUP MEETINGS

THE WEST MIDLANDS QL USER GROUP

There has been a change of venue, brought about by the owners of the Queens Head pub changing it from a straight pub into an eatery. The new meeting place is called the Bull, the address is 1 Price Street, Birmingham, B4 6JU. Approx 7 minutes walk from Snow Hill main-line railway station and has ample street parking nearby. Meetings remain open to QUANTA members and non-members alike.

After your first meeting you're expected to pay £1 each time towards the organisation and monthly newsletter costs - except once a year when the group pays all those who attend a pound instead ;-)

We provide food twice a year for those who attend the AGM and the group's birthday party and at meetings we discuss all sorts of things, QL-related and otherwise, usually from about 8:20pm onwards till 10:30 or later. The group owns QL hardware, a disk library and subscribes to relevant magazines. People can join the mailing list for £3.50 per year, even if they can't attend regularly.

Meetings : Meetings are usually on the first and third Monday of each month (but not on bank holidays unless the previous one was cancelled for that reason).

Contact : The contact number remains Mike Bedford White's, on 0121 605 4438, anytime after 11am.

Email: mikebwhite@blueyonder.co.uk

QUANTA DORSET SUBGROUP

Meetings are held, on the second Sunday of each month at the Merley Community Centre in Harrier Drive, Merley, just south of Wimborne Minster. Time: 2.00 pm. to 5.00 pm. All are welcome.

John Meadows Tel: 01202 576189, or John Mason, 01425 275894.

LONDON QL AND QUANTA GROUP

Meetings are held in the School Room, which is the basement of the Borough Welsh Congregational Chapel, 90, Southwark Bridge Road, London SE1. This is almost opposite the junction with Marshalsea Road, at the other end of which, 5 minutes walk away, is the Borough Underground Station. Free parking is easily available in Southwark Bridge Road for road users, Cyclists are welcome.

Members currently each pay a subscription of £40 per year towards the cost of the hire of the hall and a small additional charge is made for tea/coffee - biscuits are then provided free.

Please bring your QL equipment if possible, all types welcome, e.g., PC portable running emulators. The Group has some systems stored at the venue for its use. In addition, there are lots of donated second user equipment, books, magazines, etc, available for purchase.

Time: 2.00 pm. to 5.00 pm., on the second Sunday of the month.

No meetings are held in either December - winter break, or August summer break. Giving 10 meetings a year.

Malcolm Cadman: Tel: 020 8691 5780

email: QL@mcad.demon.co.uk

NEMQLUG - THE NORTH EAST MANCHESTER QL USER GROUP

Meetings are held at 181, Urmston Lane, Stretford, Manchester. M32 9EH (Near Junction 7 of M60 Motorway - Was Junction 7 M63 Motorway). Our informal meetings start at 7 p.m. and finish at 11 pm. All welcome.

Meets on the last Thursday of each month (except December).

John/Sarah Gilpin 0161-865 2872 (thegilpins@btopenworld.com)

SCOTTISH QL USERS GROUP

SQLUG meets at George Gwilt's home every second Sunday in the month. Please contact George Gwilt before coming to get the location.

Gdgqler@gmail.com.

SOLENT SUBGROUP

Meets at Botley Market Hall, all welcome. Park at the back and use side entrance.

1st Saturday of the month from 2.00 pm to 6.00 pm.

Graham Evans, Tel: 023 8040 3350.

SURREY QUANTA SUBGROUP (SQSG)

The group is currently trying other venues in the Leatherhead - Epsom area. If you plan to attend but do not get our emails, please phone or email Ken Bain for the latest location.

Meetings are 8.00 to 10.00 pm. On the last Wednesday of each month except December.

Ken Bain - 01932 - 347 432 (to midnight), kenb@bcs.org.uk

SUSSEX QL USER GROUP

Currently without a meeting place, anyone interested should contact Keith Mitchell or Roy Wood.

Roy Wood, 01273 430501 or Keith Mitchell, 01903 742263.

It is said that one of the first things that a committee member should do is to find their own replacement. It was in 2005 that Roy Brereton (your previous Magazine Editor) stood down after fair warning and John Mason (then Chairman) and myself (then Treasurer & Membership Secretary) offered to fill the gap and keep the Magazine alive.

After a couple of years on the Committee, you would have thought that I would have known better with already far too much to do with my current QUANTA and Scouting commitments but like many other things, the joint editor's job grew on me and during the last 5 years (well, almost) I have thoroughly enjoyed doing the job and this is a suitable opportunity for me to thank all those people (Qlers and non-Qlers alike) who have supported me and given me encouragement. Thanks also to those who have provided constructive criticism (well deserved at times) over the years.

In 2008, I thought that Committee's prayers had been answered when Tony Hill stepped forward and offered to take over as Magazine Editor. Unfortunately - for both Tony and myself - Tony was to be struck down with an extremely painful condition similar to sciatica and he must have thought us uncaring as we continued to pressure him into taking over from me. I must admit that I lost faith in Tony about a year ago. Imagine my surprise and relief when, quite out of the blue, Tony offered to help me with the editing of the Magazine and even offered himself as a nominee for the QUANTA Committee at the A. G. M. In 2010.

Those of you who recognise my style in the Magazine will have already identified which bits of this issue are Tony's (apart from the obvious one - Editorial on page 3,) and I am convinced that he has the skills to produce a very interesting publication for us all. It might even be published on time as he seems to be so much quicker than I am.

Communicating by email over some 300 miles or so hasn't been easy and I am sure that Tony has been more than a little frustrated at my plodding manner. "Never mind you putting a draft together, look at my final version that I prepared earlier" I could almost hear him saying. Even my final drafts of the AGM booklet and QUANTA Survey have been approved by Tony, but not before a few pages of (I admit, necessary) alterations had been attended to. Thanks Tony for this support and I wish you well in your task as QUANTA Magazine Editor. I look forward to your next issue.

QUANTA Magazine

The QUANTA Constitution says that I also have to stand down as Treasurer and Membership Secretary (These two roles were combined some years ago when membership levels were reduced to a level which made it impracticable for them to remain as two separate jobs). I have had a fair whack - about 8 years on committee - and 6 of those as an officer.

I realised last year when John Mason (Chairman) had to stand down (he had been on committee a little longer than I had so he agreed that would stand down first) that I only had a year to go. I have failed to find a new treasurer (or Membership Secretary for that matter) which will mean that committee will be quite stretched in 2010 but they are a resourceful lot so I'm certain that they will manage somehow. I am certain that there is someone in our membership who is capable of carrying out these duties but I am afraid that he or she will remain in the background for yet another year.

Despite leaving my posts in someone else's capable hands, I shall be remaining an ordinary member of QUANTA and will, no doubt, meet up with a number of you at forthcoming events, workshops and AGMs.

Thank you all for making the past 8 years such a pleasure.

QL Forever (or nearly!!)

Regards to you all,

John Gilpin.

And Finally, a reminder that there is still time to enter the caption competition in the last issue of QUANTA Magazine - see page 52. I cannot say that entries are "flooding" in but there **will** be a prize winner

Oh, and by the way, the first prize has been changed to one year on the QUANTA committee, the second prize is two years and there are no prizes for guessing what the third prize is!!

Send your entries to Alison Southern (QUANTA Secretary)

secretary@quanta.org.uk